boway 19005

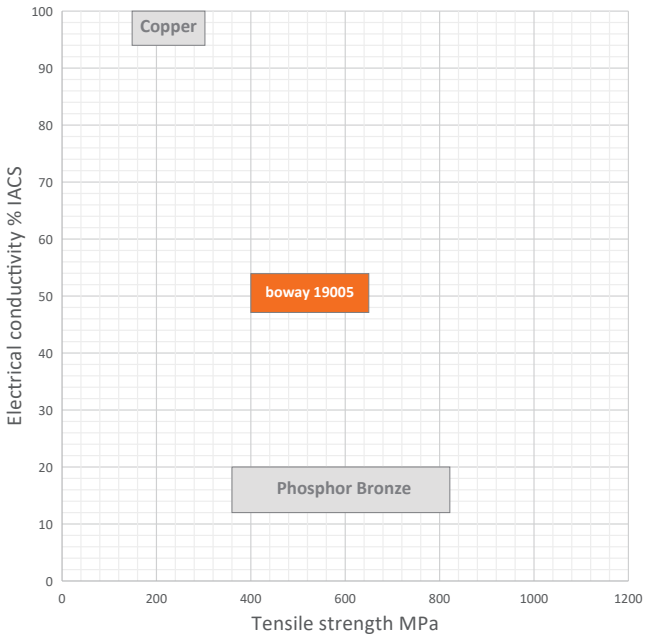
Material Designation

Boway Designation	boway 19005
UNS	C19005
EN	CuNi1.5SiZnSn
JIS	-
GB(China)	-

Chemical Composition*

Ni	1.5	%
Si	0.3	%
Zn	0.4	%
Cu	Rem.	

* Nominal composition



Application Target

Signal connector	Suitable
Power connector	Suitable
Miniaturized connector	Suitable
Switch/Relay	Suitable
Semiconductor	Not recommended

Characteristics

Improved temperature performance VS. C19010. Medium conductivity and medium strength combined with good stress relaxation resistance and good formability. Good corrosion resistance.

Fabrication Properties

Cold forming	Very good
Machining	Not suitable
Electroplating	Good
Hot dip tinning	Good
Laser welding	Suitable
Resistance welding	Average
Soft soldering	Good

Physical Properties*

Density	8.9	g/cm^3
Electrical	47	% IACS
conductivity@20°C	27	MS/m
Thermal conductivity@20°C	250	W/(m·K)
Specific heat capacity	0.377	J/(g·K)
Modulus of elasticity	127	GPa
Poisson's ratio	0.33	
Coefficient of thermal expansion**	16.8	10^{-6}/K

* Typical values at room temperature for reference
** Average value between 20–300°C

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Mechanical Properties

Temper	Tensile strength		Yield strength	Elongation	Hardness*
	MPa	ksi	MPa	A50 %	HV
R400	400–460	58–67	≥ 360	≥ 8	120–150
R490	490–550	71–80	≥ 410	≥ 10	140–170
R520	520–590	75–86	≥ 440	≥ 9	150–180
R580	580–650	84–94	≥ 540	≥ 8	170–200

*For reference only

Bendability

Bending thickness ≤ 0.5 mm; Bending width: 10 mm

Temper	90° R/T		180° R/T	
	Good Way	Bad Way	Good Way	Bad Way
R400	0	0.5	0.5	1
R490	0	0.5	1	1.5
R520	0.5	0.5	1.5	2
R580	1	1	2	2

90° bend test according to EN ISO7438, 180° bend test according to ASTM B820, shown values might show orange-peel, however no crack.

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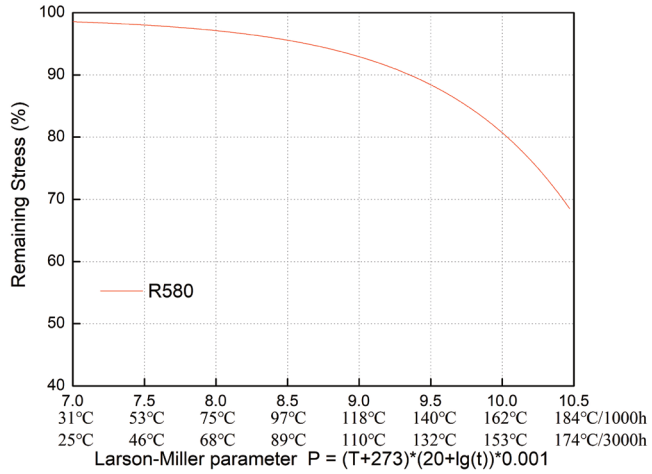
Thermal Stress Relaxation



P=Larson Miller parameter
T=temperature(℃)
t=time(h)
Example:
Application conditions: Maintain for 1000 hours at 150°C.
Formula substitution: T＝150, t＝1000
P=(150+273)×(20+lg(1000))×0.001=9.729
Graph reference: When P＝9.729, the stress retention rate is approximately 85%.
Conclusion: Under the conditions of 150°C/1000h, the remaining stress of this material is close to 85%.

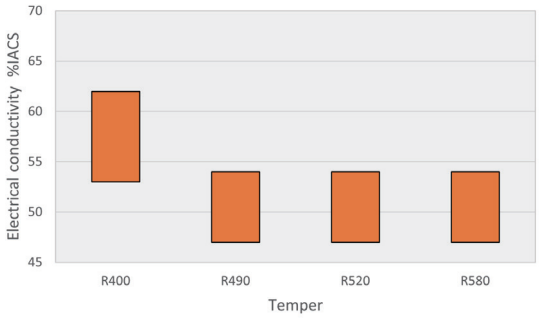
Packaging

Standard coils with outside diameter up to 1300 mm.
Traverse-wound coils with drum weight up to 500 kg.
Multiple-coil up to 3 tons.

Dimensions Available

Strip thickness 0.08–3.0 mm, other gauges on request.
Strip width from 8.5 mm.
Electroplated and hot-dip tinned strip available.

Electrical Conductivity



Fatigue Strength

The fatigue strength is defined as the maximum bending stress amplitude which a material withstands for 10.000.000 load cycles under symmetrical alternate load without breaking. It depends on the temper selected and can be estimated typically by 1/3 of tensile strength.

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